

Policy: 6785-1- Traffic Signals

Section: Traffic Signals

Office/Department: Office of Traffic Operations

Reports To: Division of Permits & Ops

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INTRODUCTION

A traffic signal should only be installed after other alternatives have been evaluated as outlined in the [Manual on Uniform Traffic Control Devices](#) and the GDOT [Intersection Control Evaluation \(ICE\) Policy](#). Although traffic signals can provide several benefits, a signal can also cause excessive delay and increased frequency of crashes. Unwarranted traffic signals can cause disobedience of traffic control devices. Traffic signals that are properly designed and timed can provide multiple advantages such as increasing the amount of capacity at an intersection, providing an orderly movement of traffic, reducing the frequency and severity of certain types of crashes and providing levels of accessibility for pedestrians and side street traffic.

SIGNAL PERMIT AND AUTHORIZATION FORMS

All traffic signal devices erected on the State Route System must have a permit application from the local government to the Department of Transportation and a Traffic Signal Authorization issued by the Department prior to their installation. The Signal Permit Application serves as the agreement between the Department and the local government for the signal. Even in communities where signals are maintained by GDOT, a formal document of agreement is needed. The permit application is used to allow local government to formally request the use of a traffic signal. This application indicates the approval of the local government for the use of the signal. It also commits local government to provide electrical power to the intersection (and communication when applicable).

The Traffic Signal Authorization is the permit indicating the formal approval of the Department for the use of the traffic signal at the intersection. Design drawings are a part of the authorization form showing the intersection details, the signal head arrangement, the signal phasing and the detector placement. Regardless of the method of funding and installation, a signal authorization is needed. The original of this authorization is kept by the Office of Traffic Operations with copies sent to the District Office and from the District Office to the local government for their records.

TRAFFIC SIGNAL REQUESTS

Requests for traffic signals come to the Department from a wide variety of sources. State, city and county elected officials responding to their constituents will often request the Department to evaluate an intersection for a traffic signal. All inquiries are considered a request for assistance and should be investigated to determine if a signal or some less restrictive improvement should be implemented.

Once a request is received, the District Traffic Engineer should initiate an engineering study using the methods described in the MUTCD and GDOT's ICE Policy. It is the Department's preference that only signals that meet Warrants 1 (Eight-Hour Vehicular Volume) or 7 (Crash Experience) in the MUTCD at 100% be installed; however, other warrants may be evaluated if engineering judgment determines that other applications are appropriate. Intersection evaluations indicating that a signal will not meet Warrants 1 or 7 may be denied by the Department. Proposed signals may also be denied if they do not meet the minimum spacing

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requirements in the Driveway Manual. As the MUTCD states: **"The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal."**

STUDY AND APPROVAL PROCESS

The traffic engineering study should document the need for an improvement and include, at a minimum, the following: reason for investigation, existing conditions, crash history of the site with a diagram illustrating the number of correctable crashes that occurred within a consecutive 12 month period of the last 3 years, 12 hour turning movement counts on each approach with hourly totals (if there are only ADTs available then the 5.6% method may be applied) and a warrant analysis of MUTCD warrants 1 and 7 at the 100% threshold. The study should ~~first~~ consider less restrictive measures such as improved signing, marking, sight distance, operational improvements, etc. The study should also evaluate the other intersection control types that are outlined in GDOT's Intersection Control Evaluation (ICE) Policy. GDOT has also created a tool to assist with choosing an intersection control type. If a traffic signal is chosen, an ICE document will need to be provided along with the study and permit request.

New signals are often requested in the anticipation of increased traffic due to proposed developments. Studies should show the amount of anticipated volumes from developments using the current Edition of the ITE Trip Generation Manual. Since these volumes are only projections, the State Traffic Engineer may determine that generated volumes are not appropriate, and a warrant analysis should be performed once the development is built and use actual volumes. If a signal is approved based on generated volumes, it should be restudied one (1) year after the signal is installed to determine if the actual volumes meet warrants. If the signal does not meet warrants after re-study, the signal should be removed using methods outlined in the MUTCD. Additionally, when a signal is approved based on generated volumes, the installation will only be allowed once the development is substantially underway.

The completed Traffic Engineering study shall have a signature page that includes the conclusions and recommendations of the study. Recommendation lines shall be included for the District Traffic Engineer, State Traffic Engineer, and Division Director of Operations.

The completed Traffic Engineering study shall have a signature page that includes the conclusions of the study and the recommendations of the District Traffic Engineer. Approval blocks should be included for the District Traffic Engineer, District Engineer (optional), State Traffic Engineer, and Division Director of Operations.

Once completed, the Traffic Engineering study will be sent to the District Office of Traffic Operations for review. If the District Office of Traffic Operations agrees with the findings of the Traffic Engineering study that a traffic signal is justified, they will forward the study and a Traffic Signal Authorization to the State Traffic Engineer. A permit approval form will be prepared and the entire package sent for signatures by the Division Director of Operations and final approval by the Chief Engineer of the Department. A copy of the approved permit and the design will be returned to the District Traffic Operations Office for transmittal to the local government for their records.

A formal permit application is not necessary for the Department to begin an investigation about the need for a traffic signal. However, the approval package will not be sent to the local government until a formal application for the traffic signal has been received.

SIGNAL PERMIT REVISIONS

Signal permit revisions will be required for all changes made to the signal operation or design. Any proposed intersection improvements will require an ICE document before a permit revision can be approved and issued by the State Traffic Engineer. In

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certain cases such as adding a left turn phase or upgrading signal equipment, an ICE waiver may be submitted to the District Engineer for approval. Once the waiver is approved, it will be submitted along with permit revision.

SIGNALS IN ROAD CONSTRUCTION PROJECTS

If a signal is being proposed as part of the construction project, the permit application, signal authorization form and Traffic Engineering study ~~is~~ are still necessary for the signal to be installed. Existing signals requiring upgrades may be included in the construction project and should follow the same process as signal revisions that are not included in construction projects. The District Traffic Engineer should be the primary initiator for new signals or signal revisions on construction projects. This is to be accomplished as early in the project life as possible, preferably at the design concept stage.

The Traffic Engineering study prepared for the proposed signal should follow the guidance outlined in the [Study and Approval Process](#).

Due to the detrimental effect of traffic signals on the flow of arterial traffic, a traffic signal may not always be to the benefit of the State Highway System. Therefore, it is likely that signals which are justified by design year traffic volumes will be denied or deferred if initial traffic volumes do not warrant their inclusion in the project. Justification for the signal is even more important in this case as it will document conditions at a point in time and will assist in the decision making process to determine the right time to approve signalization.

PEDESTRIAN ACCOMMODATIONS AT SIGNALIZED INTERSECTIONS

Crosswalks and pedestrian signal heads, including ADA considerations, shall be installed on all approaches of new traffic signal installations or revised traffic signal permits unless an approach prohibits pedestrian traffic. Exceptions may be granted if the pedestrian pathway is unsafe for pedestrians or the traffic engineering study documents the absence of pedestrian activity. The District Traffic Engineer, Project Manager, Consultant, local government, or Permit Applicant must document the conditions and justification for eliminating pedestrian accommodations for each approach being requested. The documentation will be included in the permit file if accepted.

In the case of one or more pathways being determined unsafe to cross at a signalized intersection, appropriate MUTCD signing prohibiting pedestrian traffic must be erected. Use of MUTCD signing may also be appropriate when it is necessary to restrict access to one pedestrian pathway.

Turn Lanes

Turn lanes are one of the more effective ways to enhance safety and operations at an intersection. Turn lanes improve safety and operations by removing stopped or decelerating vehicles from the through lanes. Left turn lanes have been shown to reduce crashes by 50% on average and should be added on all approaches of an intersection.

A lack of left turn lanes will likely result in the denial of a signal permit request unless engineering justification is provided and approved. The determination of the omission of left turn lanes will be up to the State Traffic Engineer. Please see [Policy 6785-2](#) for guidance on adding left turn phases.

References:

None.

History:

revised: 02/27/18;

added to TOPPS: 04/10/96;

added to Manual of Guidance: 01/05/87